

# Interprofessional education for physiotherapy, medical and dietetics students: a pilot programme

**Sue Pullon** MPHCh, FRNZCGP, MBChB;<sup>1</sup> **Eileen McKinlay** MA (App), RN;<sup>1</sup> **Louise Beckingsale** PGDipDiet;<sup>2</sup> **Meredith Perry** PhD, MManipTh, BPhy;<sup>3</sup> **Ben Darlow** MSportsPhysio, BPhy;<sup>3</sup> **Ben Gray** FRNZCGP, MBChB;<sup>1</sup> **Peter Gallagher** PhD, RN;<sup>4</sup> **Kath Hoare** MA, RN;<sup>4</sup> **Sonya Morgan** MHSch<sup>1</sup>

<sup>1</sup>Department of Primary Health Care and General Practice, University of Otago, Wellington, New Zealand

<sup>2</sup>Dietetic Programme, University of Otago, Wellington

<sup>3</sup>Centre for Physiotherapy Research, University of Otago, Wellington

<sup>4</sup>Medical Education Unit, University of Otago, Wellington

## ABSTRACT

**INTRODUCTION:** Interprofessional education (IPE) has been shown to enhance interprofessional practice among health professionals. Until recently there has been limited opportunity to undertake such initiatives within existing pre-registration degree courses in New Zealand.

**AIM:** This study aimed to test the feasibility of delivering an interprofessional component within existing health professional courses for medicine, physiotherapy and dietetics at the University of Otago, Wellington, New Zealand.

**METHODS:** An interprofessional case-based course component (on chronic condition management) was developed by academic clinical teachers from schools of medicine, physiotherapy and dietetics at the same location. Evaluation was undertaken using a previously validated pre- and post-survey tool, to ascertain changes in attitude among students towards interprofessional practice, IPE and the effectiveness of health care teams. Focus groups were conducted with students and teachers.

**RESULTS:** Survey results indicated pre-existing positive attitudes to interprofessional practice and education among students. There was a statistically significant increase in positive attitude towards such practice and education, and increased confidence in the effectiveness of health care teams. Focus group findings were consistent with the survey results for students, and highlighted challenges experienced by the teachers.

**DISCUSSION:** Students and teachers alike enjoyed the interprofessional interaction and benefited from a collaborative approach to chronic condition management. The timing and nature of learning activities and assessment methods created logistical challenges. Such course components have potential to improve collaborative practice and the quality and safety of health care among graduates. Interprofessional course components need to be equitable across disciplines and embedded in the unidisciplinary courses.

**KEYWORDS:** Dietetics; education; interprofessional relations; medicine; New Zealand; physiotherapy; primary health care

## Introduction

Interprofessional practice optimises the use of multiple skill sets to provide best possible care for patients to improve health outcomes and patient satisfaction. Such practice is a cornerstone of primary health care—and has been shown to benefit patients in a variety of clinical settings, and improve job satisfaction for health professionals.<sup>1</sup> Quality of care and patient safety are improved; staff are more readily retained and recruited.<sup>2,3</sup>

Effective care for patients with chronic conditions is most often achieved when health profession-

als with complementary skill sets work closely together to meet their multiple needs.<sup>4</sup> The more complex the patient, the greater the range of skills required and the more important collaborative care becomes.<sup>5</sup> Collaborative interprofessional practice in primary care settings often means providers have to work across multiple sites, including the patient's home.

One important way of fostering and enhancing interprofessional practice is through interprofessional education (IPE). IPE occurs when health professionals from more than one discipline learn with, from and about each other, actively

J PRIM HEALTH CARE  
2013;5(1):52–58.

## CORRESPONDENCE TO Sue Pullon

Associate Professor,  
Department of  
Primary Health Care  
and General Practice,  
University of Otago  
PO Box 7343, Wellington  
South, New Zealand  
sue.pullon@otago.ac.nz

negotiating to participate in patient care together, and extending students well beyond occasional interaction with a teacher of a different discipline.<sup>6</sup> Although often challenging to introduce,<sup>7,8</sup> IPE undertaken with good facilitation in turn enhances interprofessional practice.<sup>9</sup>

Internationally, IPE has been successfully introduced into a number of health professional courses.<sup>10</sup> While the number of new programmes designed from the outset to incorporate an interprofessional ethos remains small, established unidisciplinary programmes have been able to introduce interprofessional components in both classroom and clinical settings. For IPE to be successful, staff need to be able to engage in and role model collaborative practice; they need to be 'IPE ready'. In clinical settings, clinical providers need to be engaged in interprofessional practice and open to further enhancement.<sup>11</sup> Key interprofessional competencies include effective, respectful communication, successful conflict negotiation and resolution, shared decision-making, and active collaboration with patients and families. Tools have been developed to not only measure these competencies but to also demonstrate improvement over time.<sup>12,13</sup>

IPE has been shown to develop and improve interprofessional competencies over the duration of a course,<sup>14</sup> although as yet little data exists to demonstrate continued interprofessional practice as a direct result of specific IPE course components.

In New Zealand, there are a number of established IPE programmes at postgraduate level, but little at undergraduate level. The Wellsford IPE programme (based at a comprehensive primary care facility north of Auckland) has been a notable exception,<sup>15</sup> overcoming considerable curricula alignment and timetabling issues to deliver an effective programme to small numbers of students. At the University of Otago, Wellington (UOW), increasing numbers of medical, dietetic and physiotherapy students are co-located on the same campus. Could an IPE course component based in primary care, involving students from three disciplines, be successfully developed and delivered at UOW? This pilot study aimed to test the feasibility and acceptability of delivering an interprofessional component in chronic condition

## WHAT GAP THIS FILLS

**What we already know:** Collaboration amongst health professionals to provide best possible care for patients is a central tenet of primary health care. Interprofessional education (IPE) is one important way to train health professional students to work together more effectively.

**What this study adds:** IPE can be successfully delivered as a component within established courses of pre-registration study in a New Zealand setting, notwithstanding structural and organisational institutional barriers. Teaching staff need to be committed to working together as interprofessional role models.

management across and within three existing but separate pre-registration programmes in medicine, dietetics and physiotherapy, with students learning with, from and about each other.

## Methods

Academic clinical teachers responsible for curricula design and delivery in the three programmes agreed to work together to modify an existing interactive chronic conditions course component for use as an IPE curriculum component in 2011. The course was designed around a patient-centred approach and informed by Wagner's model for chronic condition management.<sup>16</sup> Intended learning outcomes for interprofessional interaction were developed and agreed across the three disciplines. These included key elements of interprofessional practice: respectful, open communication, patient-centred collaboration, mutually satisfactory negotiation and re-negotiation, and shared decision-making.

Due to small numbers, all seven fourth-year (of a five-year course) dietetic students were requested to take part in the course. Physiotherapy and medical students (fourth and final year, and fourth year of a six-year course respectively) were invited to participate, to make up an interdisciplinary group of 21 students—seven from each discipline. Year selection of students was made for both convenience and educational equivalence reasons. Students were given information about the pilot programme, the consent process and the associated evaluation process prior to participation.

The programme commenced with a 'meet, greet and eat' early evening session for all 21 students

and the academic clinical teachers, who were from diverse disciplinary backgrounds. The course outline and requirements were introduced alongside teambuilding activities where no one group or discipline would have an advantage. The interprofessional practice pilot then ran concurrently with other usual course requirements.

Together, some two weeks later, students participated in a three-hour interactive session jointly facilitated by four teachers from the three established degree courses (with disciplinary backgrounds in medicine, nursing, physiotherapy and dietetics) to learn about collaborative approaches in chronic condition management. Subsequent contributions to an e-learning platform (IPE CCM—Interprofessional Education Chronic Care Management) provided continued communication and the opportunity to learn from each other about chronic condition management.

In interdisciplinary groups of three, students then had two to three weeks to arrange and undertake a home visit together, to a previously identified person currently receiving health care for a number of comorbidities. Suitable people attending a local primary care provider were approached and their consent sought for students to make contact and arrange to visit them. Students were expected to talk with the person they visited to gain an understanding of multiple facets of their illness and its impact, including caregivers' perceptions if appropriate. Following the visit, the students worked together to prepare group presentations for peers and the teaching team. They outlined the person's conditions and perspectives and used their own and each other's respective disciplinary knowledge to share decision-making, construct an appropriate joint management plan and make recommendations about future care.

Assessment of this interprofessional curriculum component was undertaken in conjunction with the students' usual course requirements. Students were assessed on the content and process of their joint presentation, as well as their ability or otherwise to participate and contribute to their group. Tutor, self- and peer-assessment tools were used. Summative assessment (either graded or pass/fail) was a requirement for the dietetic and

medical students, but participation in the project was not able to count towards the physiotherapy students' grades in this pilot. The course (as opposed to the students' individual performance) was evaluated using both an established survey tool and independently conducted focus groups.

### Survey tool

Students completed a pre- and post-survey using an established tool,<sup>17</sup> adapted with permission (personal communication, Professor V Curran Memorial University NL, Canada, 2011). This tool collects demographic and disciplinary data, and includes three validated surveys<sup>18-20</sup> ascertaining aspects of interprofessional practice and learning. Scale 1 measures Attitudes Towards Interprofessional Health Care Teams; Scale 2, Attitudes Towards Interprofessional Education; and Scale 3, Perception of Effective Interprofessional Teams. Scales 1 and 2 measure readiness to participate in IPE, whereas Scale 3 asks about perceived effectiveness, including students' own ability to work within an interprofessional team.

For each scale, data were collected on a 5-point Likert-type scale across a number of sub-items. For Scales 1 and 2, scores range from 1 to 5, where 1=strongly disagree; 5=strongly agree. Reverse scoring is required on some items. For Scale 3, scores range from 1 to 5; this time 1=poor; 5=excellent, with no reverse scored items.

A global score for each student was calculated as the mean over all sub-items on a given scale. Mean pre-scores and changes in scores were then calculated over the whole group. One-sample *t*-tests were used for each scale to test whether mean change scores were significantly different from zero (i.e. to determine if opinions regarding IPE shifted during the programme).

### Focus groups

Three separate discipline-specific student focus groups were convened and facilitated by two independent educationalists (from nursing backgrounds) immediately after the completion of the CCM course. Questions were initially suggested by the teachers; the facilitators adapted these and remained open to other comments and sugges-

tions during each of the focus groups. Students were asked about their perceptions of learning in an IPE class, the process undertaken and the clinical content (about chronic condition management) of the interprofessional course.

The same facilitators also held a focus group some eight weeks later with the academic clinical teachers involved with the teaching and facilitation; questions were similar to those asked of students, but appropriately adapted. Audio-recording was undertaken for all four groups and brief, handwritten notes were made during the sessions. At a later date, the two facilitators listened together to the recordings and made separate notes for comparison. Subsequent discussion enabled agreement about recurring key points identified in each discussion group. Some comparisons were able to be made between student and staff perceptions about the programme. Data were summarised and presented anonymously to the teaching team.

The study received ethical approval via the University of Otago's category B process.

## Results

### Student participation

The dietetic and physiotherapy students were enthusiastic from the outset about participating in the project; medical students were initially more reticent, needing reassurance about possible additional workload. All 21 students successfully completed the course. All 21 students separately consented to take part in the evaluation process; it was made clear that participation in the evaluation was optional and did not affect course assessment.

### Course set-up, content, delivery and assessment—teacher perceptions

The teaching team focus group results identified a number of significant challenges in course set-up. Working within the constraints of already established and centrally imposed timetables was challenging and the pilot was only able to be scheduled once, relatively late in the academic year. Much time was spent finding mutually acceptable

dates for the three teaching sessions and associated activities. In contrast, the teachers spoke of many similarities in the concepts and approaches appropriate to chronic care management.

In the set-up phase, identification and selection of course objectives acceptable to the three disciplines was not difficult and was achieved by comparing and mapping the three different sets of curricula. The team discussed viewpoints on chronic care approaches, observed the teaching of the prototype curriculum to medical students, considered different pedagogical methods and agreed on how each teaching team member would be involved. Although time consuming, it was felt that the process for sorting all the practicalities enhanced already good prior professional relationships, resulting in a collective and trusting team approach by the time the teaching programme began.

During programme delivery, teachers found that the informal sessions and processes were as important to the programme as the formal requirements. They described the challenges faced by the students in organising their joint home visits as informally assisting the IPE process, with the visit and the associated tasks central to the more formal learning.

Although the 'internal' assessment of the joint presentations had been agreed, the differing contributions to the three degree courses of study presented problems. All the teachers described this as unsatisfactory, and readily identified the need to better integrate any such IPE component within current courses, especially in relation to assessment.

### Course content, delivery and assessment—student perceptions

Students also identified the informal sessions and processes as being as important to the programme as the formal requirements. The 'meet, greet and eat' session was popular, as was the working together to achieve a common goal (the presentation). Students said they learned of the contribution made by each profession not so much in the actual classroom teaching, but by '...what we learned by hanging out with other members of the group'.

Students found the home visit challenging to arrange, but more importantly, identified that simultaneous visiting was not the way they had seen patient visits working in practice. Some expressed frustration that they were not able to ask what they perceived as all the necessary assessment questions. In the focus group they suggested visiting sequentially (as this was the way they had seen an MDT (multidisciplinary team) in the hospital operating).

While students agreed that chronic condition management was a suitable content area for IPE, some identified team care of the acutely unwell patient as also lending itself to interprofessional learning. Some students felt poorly prepared for IPE prior to participating in the programme, so had little idea of what to expect. Students disliked the idea of a formal assessment, but agreed that if it is in the course then it must be compulsory in the same manner for all students.

### Changes in students' understanding of interprofessional practice, education and health care teams

Pre-course survey data from all 21 students indicated generally positive attitudes to interprofessional health care teams (Scale 1), IPE (Scale 2)

and perceived effectiveness of interprofessional teams (Scale 3). Responses on Scale 3 had more variability than for the other two scales, suggesting more mixed views on the effectiveness of interprofessional teams (See Figure 1—pre-course survey scores).

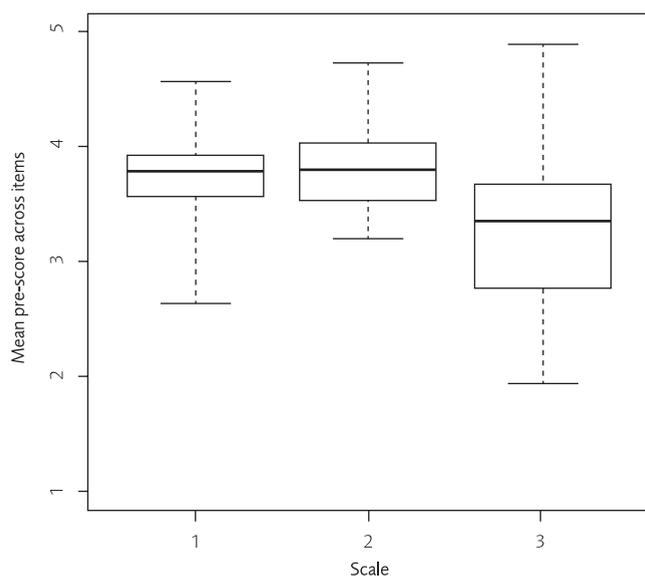
Significant pre- to post-course improvements in scores were found on all three scales. For Scale 1, the mean improvement was 0.2 points (95% CI 0.02–0.386;  $t(20)=2.34$ ,  $p=0.03$ ); for Scale 2, mean improvement was 0.26 points (95% CI 0.08–0.45;  $t(20)=3.06$ ,  $p=0.006$ ); for Scale 3, mean improvement was 0.64 points (95% CI 0.36–0.92;  $t(20)=4.73$ ,  $p<0.001$ .) The box plots in Figure 2 (indicating the median, quartiles, and range) show the distribution of changes in score on each scale.

## Discussion

Interprofessional education programme components are often difficult to organise and deliver at pre-registration level within established unidisciplinary degree courses, even when disciplines are agreed on the need to introduce such components into health professional education. Curricula alignment, appropriate assessment, student satisfaction and timetabling can all be problematic.<sup>8</sup> This pilot project tested the feasibility of delivering an interprofessional chronic conditions component across three health disciplines, within established courses of unidisciplinary study. High levels of student satisfaction and evidence of successful collaborative learning about chronic condition management were demonstrated. There was a demonstrable improvement in appreciation of interprofessional team effectiveness between the beginning and end of the programme.

The study was limited by small numbers of students, and there was no opportunity to repeat the programme with a subsequent group of students in the same academic year, as had been originally envisaged. The three disciplines were selected for pragmatic reasons (campus location), although all have common ground in the management of chronic conditions. The tool selected for evaluation of the success or otherwise of the acquisition of interprofessional competencies had not previously been trialled in a New Zealand context.<sup>17</sup> Although all dietetic students in the

Figure 1. Pre-course survey results of understanding of interprofessional practice and learning



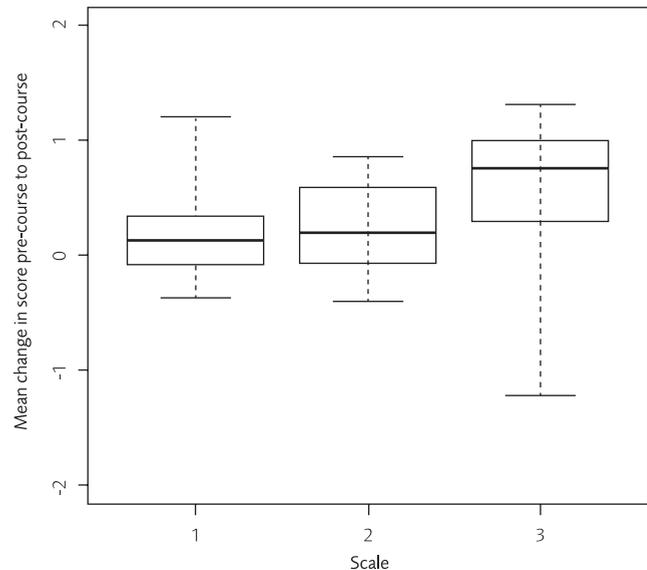
cohort participated in the programme, medical and physiotherapy students were self-selected, so were likely to be those more interested in interprofessional approaches than non-participating colleagues. The successful weaving of the IPE programme into existing curricula without creating significant additional student work and the commitment of individual teachers in each discipline to use IPE principles to work effectively and visibly together proved to be particular strengths of the pilot study.

Nevertheless, although the interdisciplinary teaching team found the designing and delivery of the programme enjoyable, it was time consuming and required a considerable willingness for previously accepted teaching methods and overall approaches to health care to be challenged. All teachers found they actively moved to adopt an interprofessional approach to the student group as a whole, valuing the range of contributions and perspectives. Furthermore, as described elsewhere,<sup>21</sup> they found it necessary to make their own working processes particularly explicit.

These pre-registration students already had a well-developed sense of their own professional identity; the attitudes of the teaching team to each other had to ensure participative safety<sup>22</sup> in honouring professional identity through consistent interprofessional respect.<sup>23</sup> Much about the process had to be considered and intentional, including such things as how and who in the teaching team should answer particular questions or introduce specific teaching points—a process not dissimilar to the building of a clinical team.<sup>24,25</sup>

Although not specifically measured in this feasibility study, it seemed important to students that their ‘disciplinary’ teacher be visible and be seen to be a credible teacher by the student group—something that readily happened when at least one IPE teacher from each discipline was involved in each teaching session. The effect of prior role modelling was evident; students expected to replicate the MDT processes (serial visiting by multiple health providers at different times) they had observed from hospital wards, rather than consider what might be achieved by simultaneous person/patient visits at the same time, as they undertook in this programme.

Figure 2. Mean score changes in results of understanding of interprofessional practice and learning between pre- and post-course surveys



Student recruitment and student assessment both presented difficulties in the pilot because processes varied across the disciplinary groups. For such a pilot, these variations were unavoidable, but need to be addressed in any sustained roll-out of such a programme. Standard participation in IPE course components has been advocated in other settings;<sup>26</sup> recruitment issues for this programme at UOW could be solved by making structural changes in unidisciplinary programmes so that all students in a rotational group could participate. Similarly, further alignment of assessment requirements is needed across the different degree courses. Student representation in early curriculum development<sup>7</sup> is one way concerns regarding unfamiliarity with IPE processes and values could be alleviated.

Using the survey instrument,<sup>17</sup> student attitudes towards interprofessional health care teams and IPE appeared to be reasonably positive before the programme commenced, indicating a readiness for IPE.<sup>20</sup> For students already involved in experiential clinical learning in workplaces where some interprofessional practice already occurs, this is not unexpected, and further positive change may be difficult to demonstrate over the course of a short programme component such as this one.

Though perceptions about the effectiveness of interprofessional health care teams were somewhat mixed prior to the commencement of the programme, an overall significant improvement in post-programme scores was demonstrated. Numbers were too small to make any sensible interdisciplinary comparisons. The survey instrument findings appear largely consistent with the findings from the focus groups, although further research involving greater student numbers would be needed to confirm the validity of the tool and consider possible disciplinary differences. The study did not seek to investigate changes in student understanding of chronic care nor investigate the relative value of each component of the IPE programme; both these aspects need further investigation.

This IPE pilot study has shown that interprofessional components can be successfully introduced across existing pre-registration health professional degree courses in a New Zealand context. The success or otherwise of this course component appeared here to be particularly dependent on the ability of the interdisciplinary teaching team to work explicitly together, actively demonstrating interprofessional principles that are able to be applied to clinical workplaces. Students already positively disposed towards interprofessional practice and education benefited from modest changes in their degree course structure to accommodate an enjoyable interprofessional course component in the area of chronic condition management that involved little additional student workload.

#### ACKNOWLEDGEMENTS

The authors wish to thank all the students who so willingly participated and without whom the pilot programme would not have been possible. Grateful acknowledgement is extended to the Office of Interprofessional Education, Memorial University, NL Canada, for permission to adapt and use the survey tool. Biostatistician Dr James Stanley kindly provided statistical advice and manuscript suggestions. Thanks are also due to Dr Lynn McBain and other staff of the Department of Primary Health Care and General Practice, the School of Physiotherapy and the Dietetic Programme at the University of Otago, who provided support to the academic clinical teachers.

#### COMPETING INTERESTS

None declared.

#### References

1. Grumbach K, Bodenheimer K. Can health care teams improve primary care practice? *JAMA*. 2004;291:1246–1251.
2. Strasser D, Falconer J, Stevens A, Uomoto J, Herrin J, Bowen S, et al. Team training and stroke rehabilitation outcomes: a cluster randomized trial. *Arch Phys Med Rehabil*. 2008;89(1):10–15.
3. Borrill C, Carletta J, Carter A, Dawson J, Garrod S, Rees A, et al. The effectiveness of health care teams in the National Health Service. Glasgow: Aston Centre for Health Service Organization Research, 2000.
4. Wagner E. Meeting the needs of chronically ill people. *BMJ* 2001;323:945–946.
5. Oandasan I, Baker G, Barker K, Bosco C, D'Amour D, Jones L, et al. Teamwork in healthcare: promoting effective teamwork in health care in Canada. Ottawa: Canadian Health Services Research Foundation, 2006:33.
6. Freeth D, Hammick M, Koppel I, Reeves S, Barr H. A critical review of evaluations of interprofessional learning. *LTSN Centre for Health Sciences and Practice*; 2002.
7. Charles G, Bainbridge L, Gilbert J. The University of British Columbia model of interprofessional education. *J Interprof Care*. 2010;24(1):9–18.
8. Centre for Education and Research on Aging and Health (CERAH) Northern Ontario School of Medicine. Evaluation of the Experiencing Rural Interprofessional Collaboration (ERIC) Project: implications for teaching and learning. Thunderbay ON: Northern Ontario School of Medicine, Lakehead University; 2011.
9. Zwarenstein M, Reeves S, Barr H, Hammick M, Koppel I, Atkins J. Interprofessional education: effects on professional practice and health care outcomes. *Cochrane Database Sys Rev* 2002 (Issue 2).
10. Barr H, Koppel I, Reeves S, Hammick M, Freeth D. Effective interprofessional education: argument, assumption and evidence. Oxford: Blackwell; 2005.
11. Oandasan I, Reeves S. Key elements of interprofessional education. Part 2: factors, processes and outcomes. *J Interprof Care*. 2005;19 Suppl 1:39–48.
12. CIHC Canadian Interprofessional Health Collaborative. A national interprofessional competency framework. Vancouver: College of Health Disciplines University of British Columbia; 2010.
13. Curran V, Casimiro L, Banfield V, Hall P, Lackie K, Simmons B, et al. Research for interprofessional competency-based evaluation (RICE). *J Interprof Care*. 2009; 23(3):297–300.
14. Cullen L, Fraser D, Symonds I. Strategies for interprofessional education: the Interprofessional Team Objective Structured Clinical Examination for midwifery and medical students. *Nurse Educ Today*. 2003;23:427–433.
15. Boyd M-A, Horne W. Teamworking in primary health care. Teamworking and interprofessional education. Auckland: Three Harbours Trust; 2008.
16. Wagner E, Glasgow E, Davis C, Bonomi A, Provost L, McCulloch D, et al. Quality improvement in chronic illness care: a collaborative approach. *J Qual Improv*. 2001; 27(2):63–80.
17. Centre for Collaborative Health Professional Education. Collaborating for education and practice: an interprofessional education strategy for Newfoundland and Labrador. Student survey. St John's NL: Memorial University NL; 2005.
18. Heinemann G, Schmitt M, Farrell M. Attitudes towards health care teams. In: Heinemann G, Zeiss A, editors. Team performance in health care: assessment and development. New York: Kluwer Academic/Plenum Publishers; 2002:155–159.
19. Hepburn K, Tsukuda R, Fasser C. Team skills scale. In: Heinemann G, Zeiss A, editors. Team performance in health care: assessment and development. New York: Kluwer Academic/Plenum Publishers; 2002:159–163.
20. Parsell G, Blich J. The development of a questionnaire to assess the readiness of health care students for interprofessional learning (RIPLS). *Med Educ*. 1999;33(2):95–100.
21. Hall P, Weaver L. Interdisciplinary education and teamwork: a long and winding road. *Med Educ*. 2001;35:867–875.
22. Poulton B, West M. The determinants of effectiveness in primary health care teams. *J Interprof Care*. 1999;13(1):7–18.
23. Davies C. Workers, professions and identities. In: Henderson J, Atkinson D, editors. Managing care in context. London: Routledge; 2002.
24. Mickan S, Rodger S. Effective health care teams: a model of six characteristics developed from shared perceptions. *J Interprof Care* 2005;19(4):358–370.
25. Quinlan E. The 'actualities' of knowledge work: an institutional ethnography of multi-disciplinary primary health care teams. *Soc Health Illn*. 2009;31(5):625–641.
26. Cook D. Models of interprofessional learning in Canada. *J Interprof Care*. 2005;19 (S1):107–115.